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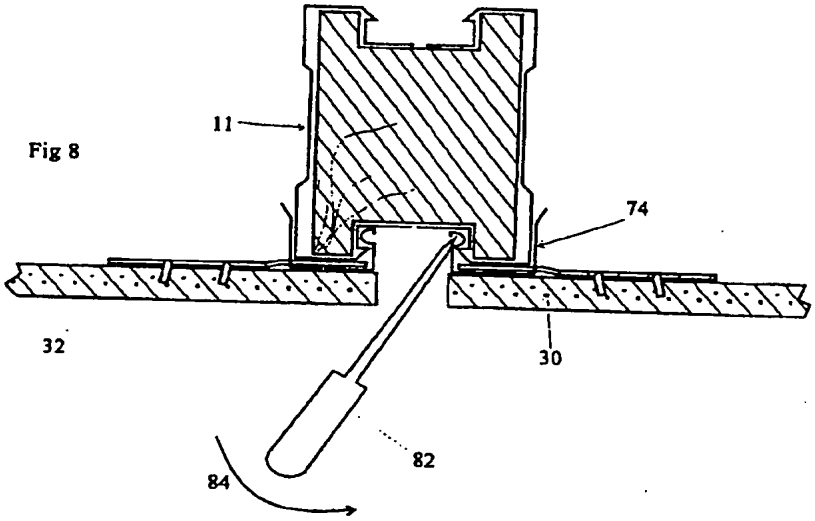
(54) Abstract Title
Partitioning system

(57) The application describes a partition system comprising a plurality of vertically disposed struts (11) and at least one panel (30) attached to those struts via attachment means comprising a U-shaped clip (74) attached to a rear face of the panel and clipped to such a strut, each strut comprising a groove running along the face opposed to a panel, the U-shaped clip having one arm extending into the groove and another extending alongside an adjacent face of the strut transverse to the rear face of the panel, thereby to grip the strut between the two arms of the U-shaped clip. The end of a curved portion of the clip can have a return lip, thus allowing a tool (82) to be inserted to pull the clip out of engagement and thereby facilitate removal. The strut preferably has a wooden core and a metal outer frame. The metal frame is preferably in two parts, the division between the two parts being preferably at the base of two grooves of the strut, at opposed faces.

Fig 8



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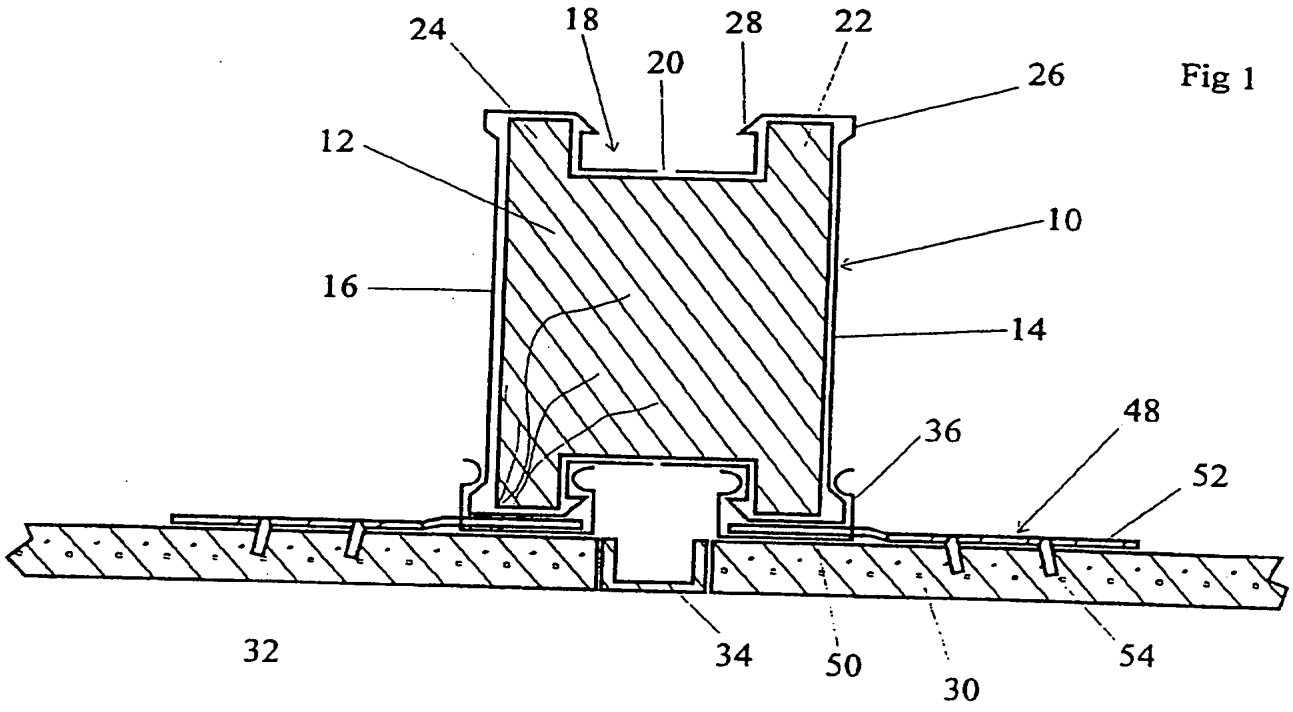
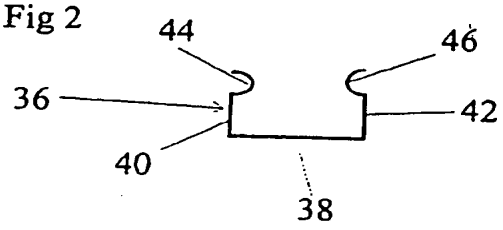


Fig 1

Fig 2



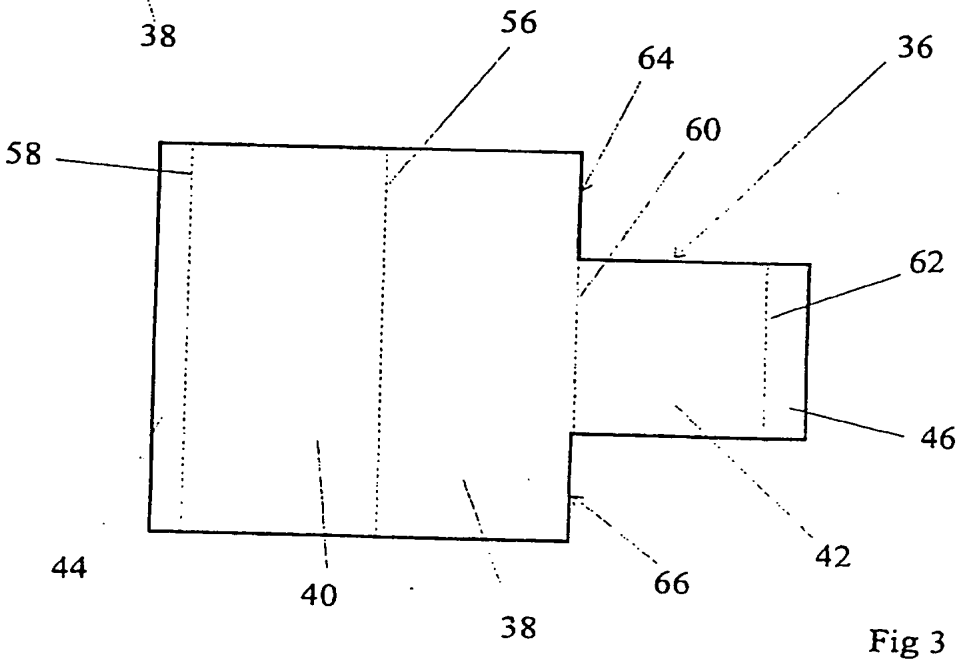


Fig 3

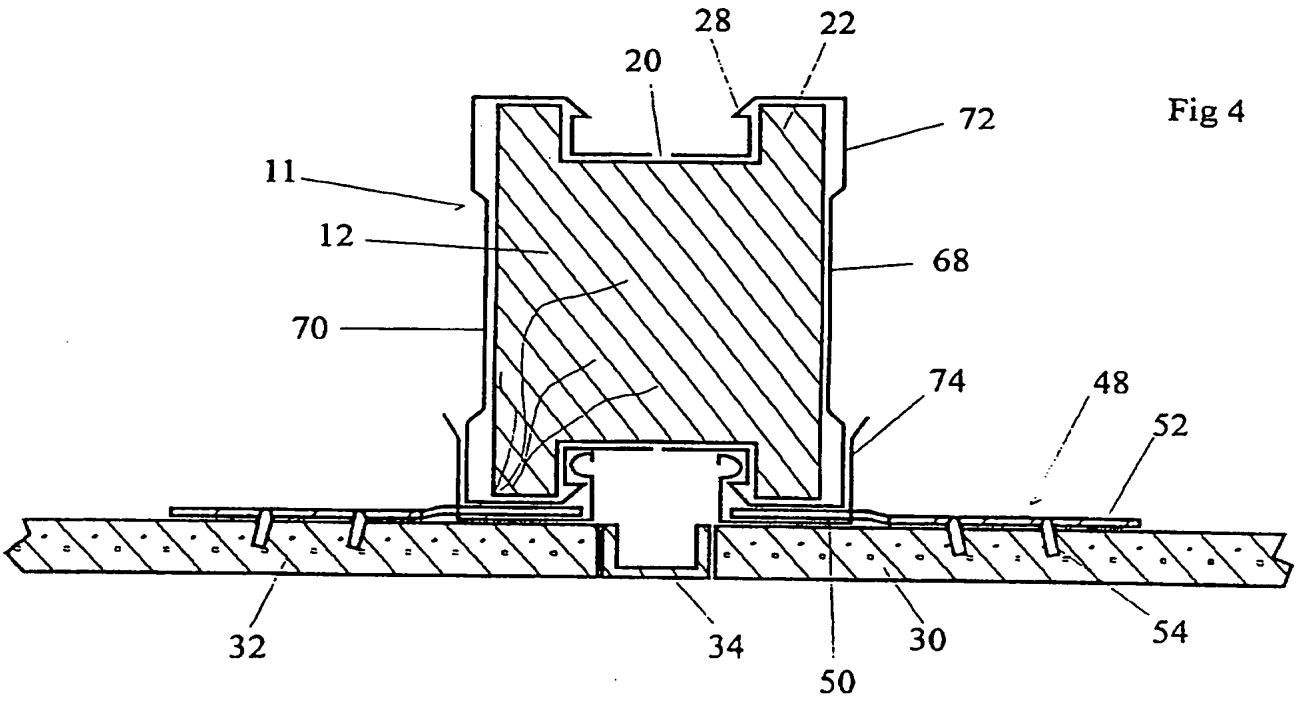


Fig 4

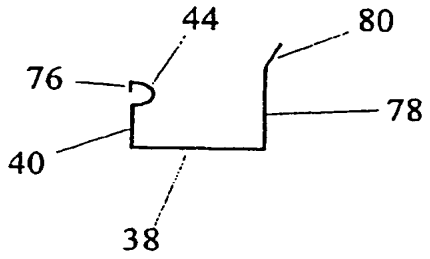


Fig 5

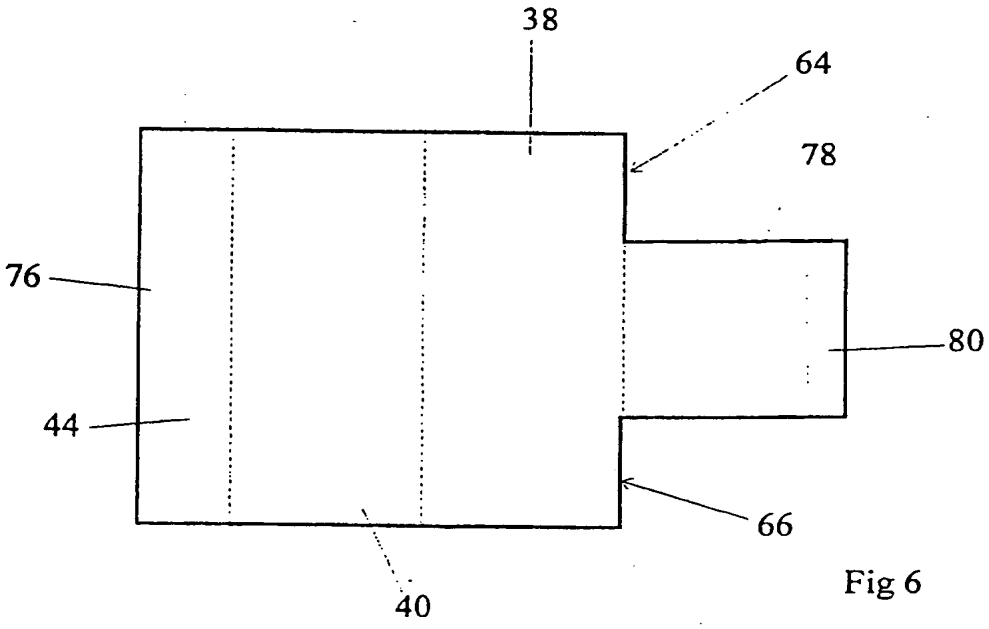


Fig 6

Fig 7

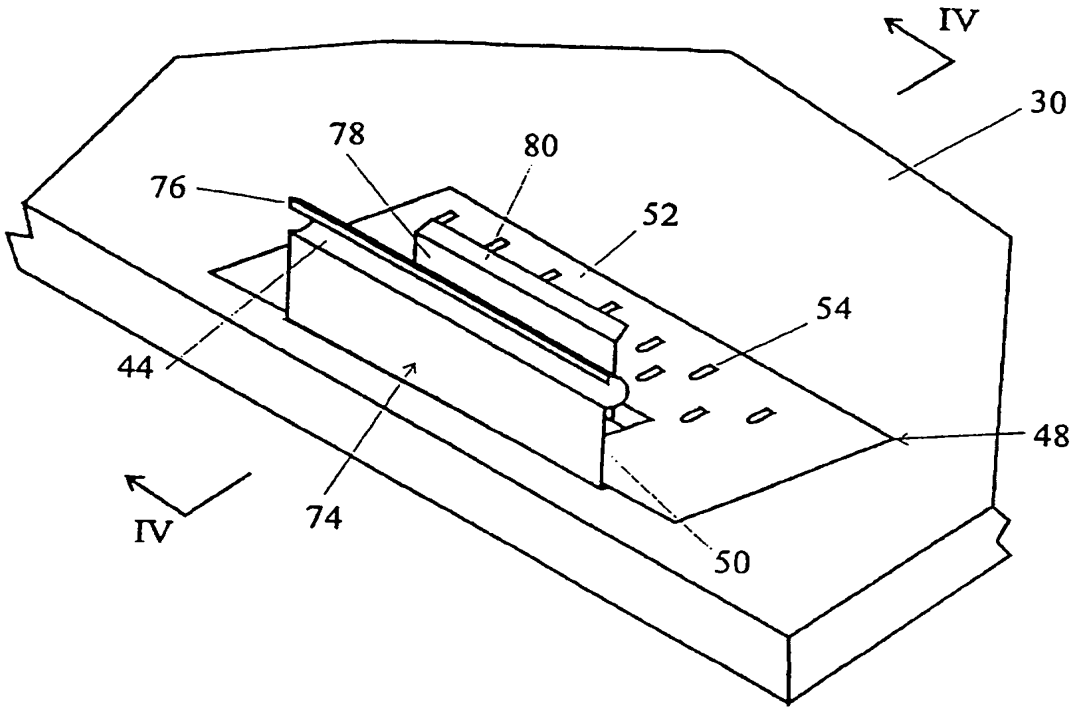


Fig 8

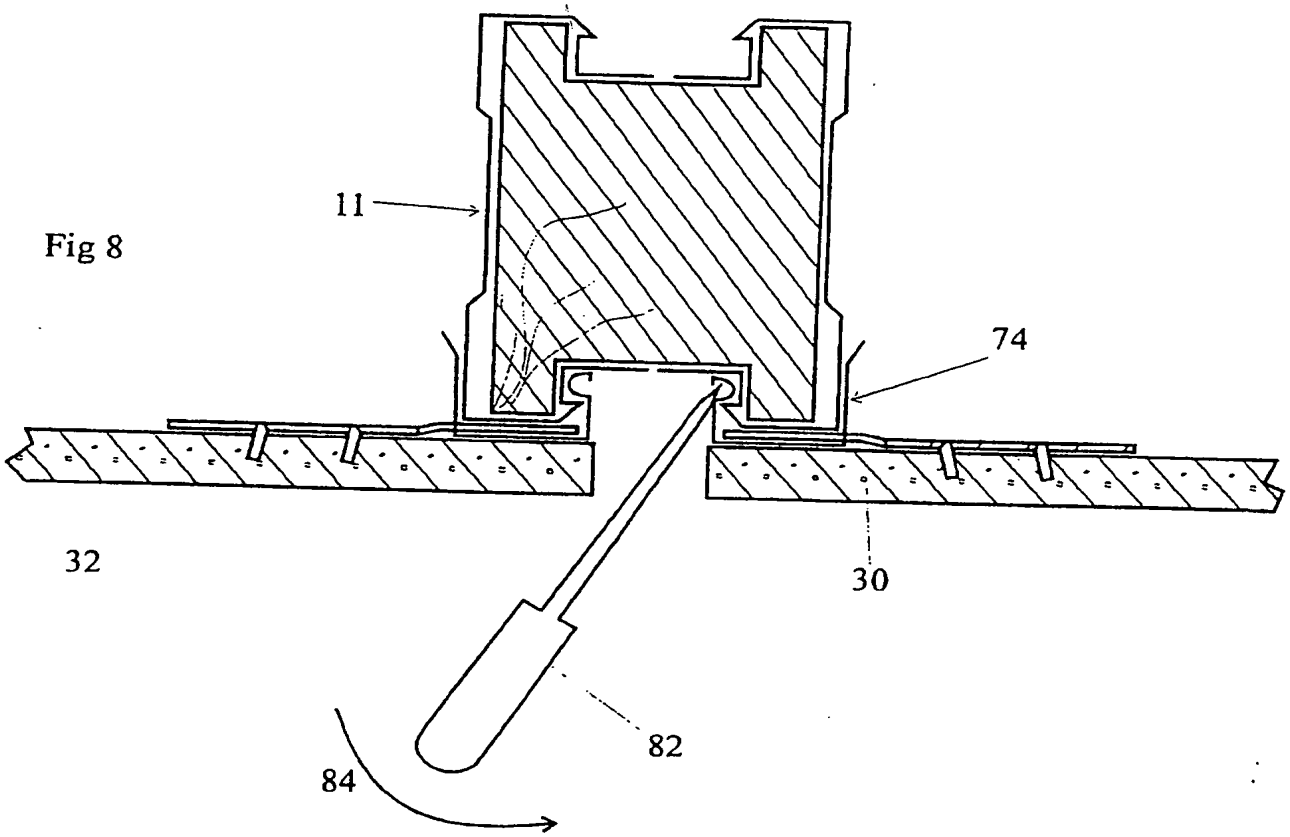


Fig 9

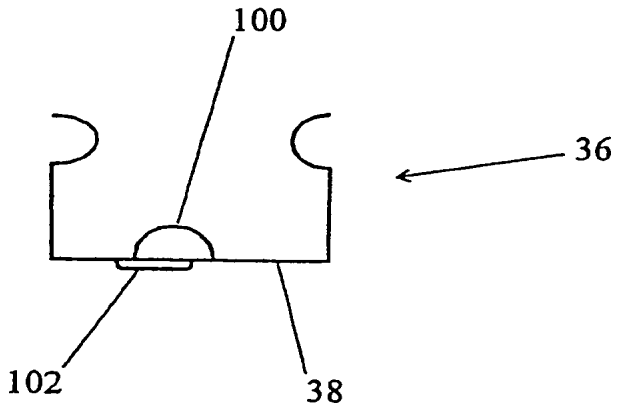


Fig 10

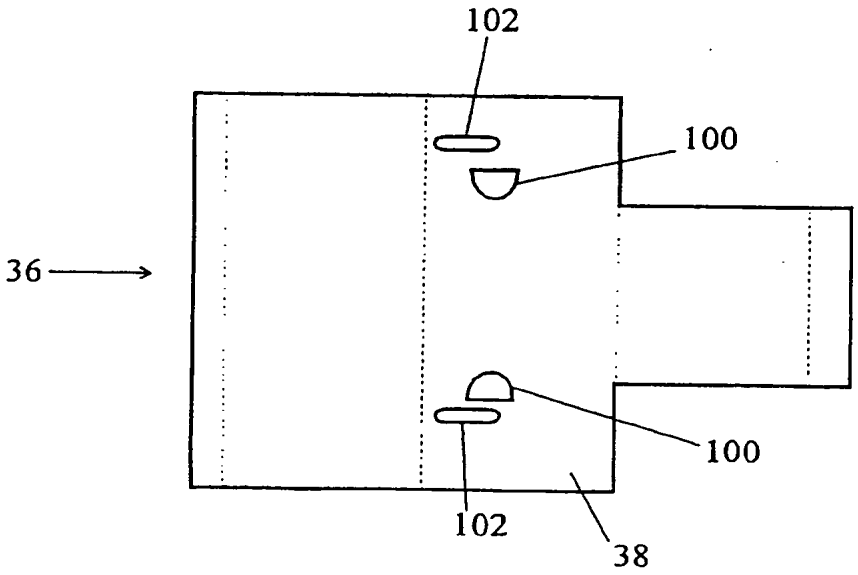


Fig 11

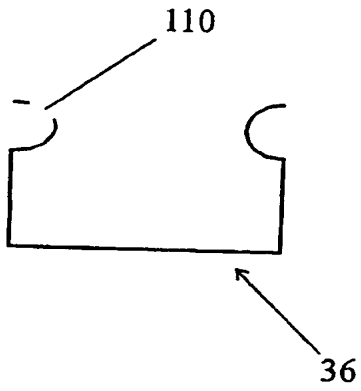
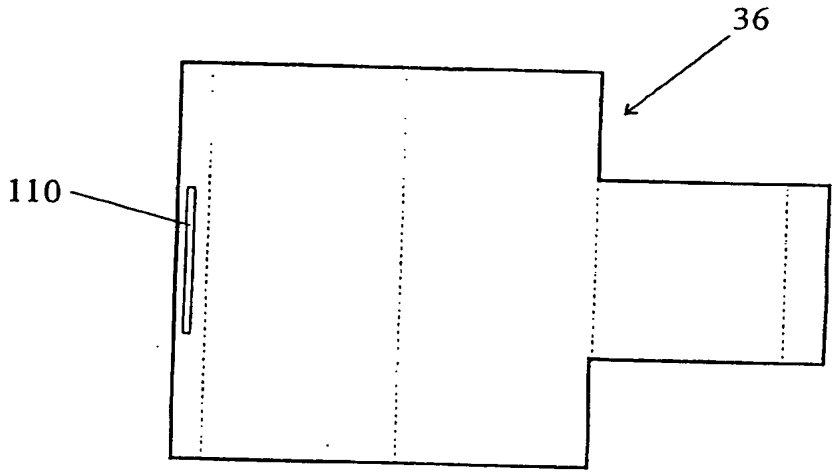


Fig 12



PARTITIONING SYSTEM

The present invention relates to a partitioning system, and the invention is concerned with the manner in which the panels of the partition wall are attached to the vertical struts within the wall.

A simple form of partition wall comprises a series of wooden struts to which are nailed an array of plasterboard panels. This is particularly simple, but requires skill and accuracy to prepare. It is also very difficult to disassemble such a wall, for instance if the design of an office is to be changed.

Other ways of attaching panels to vertical struts have been proposed, but these usually suffer from at least some of the above disadvantages, and are usually more expensive to manufacture in the first place.

The present invention therefore provides a partition system comprising a plurality of vertically disposed struts and at least one panel attached to those struts via attachment means comprising a U-shaped clip attached to a rear face of the panel and clipped to such a strut, each strut comprising a groove running along the face opposed to a panel, the U-shaped clip having one arm extending into the groove and another extending alongside an adjacent face of the strut transverse to the rear face of the panel, thereby to grip the strut between the two arms of the U-shaped clip.

Preferably, one of the adjacent face and the groove has a lip or ridge behind which the clip engages. More preferably, the clip so engages behind such a lip on both faces.

The engagement of the clip can be by way of an inwardly directed bulge which then catches behind the lip or ridge. Preferably, the bulge is an inward curve formed in the clip, which is sufficient to hold the panel firmly to the strut, yet still allow subsequent removal. More preferably, the end of the curve has a return lip, thus allowing a tool to be inserted to pull the clip out of engagement and thereby facilitate removal.

The strut preferably has a wooden core and a metal outer frame. The metal frame is preferably in two parts, the division between the two parts being preferably at the base of two grooves of the strut, at opposed faces.

The clip is suitably of spring steel.

A preferred means of attaching the clip to the rear face of a panel is by way of a face of the clip being held adjacent to the rear face of the panel beneath a planar clamp having an overlapping region and an engagement region in which it engages with the panel. This engagement can be by way of barbs upstanding from a surface of the clamp and extending into the panel. This is particularly suitable for plasterboard panels. The clamp can be cranked at the division between the overlapping region and the engagement regions, but this is often unnecessary.

Embodiments of the present invention will now be described by way of example, with reference to the accompanying Figures, in which:-

Figure 1 is a horizontal section through the first embodiment of the present invention;

Figure 2 is a cross section showing the clip 36 of Figure 1 in more detail;

Figure 3 is a view of a one-piece flat blank for the clip of Figure 1 prior to bending;

Figure 4 is a horizontal cross-section through a second embodiment of the present invention on IV-IV of Figure 6;

Figure 5 is a cross section showing the clip 74 of Figure 4 in more detail;

Figure 6 is a view of a one-piece flat blank for the clip of Figure 4, prior to bending;

Figure 7 is a perspective view of the rear face of a panel according to the embodiment of Figure 2, prior to attachment to the strut;

Figure 8 is a view similar to that of Figure 2 showing the manner in which the system may be disassembled;

Figure 9 shows a cross-section through a clip being a variation of the first embodiment;

Figure 10 is a view of a one-piece flat blank for the clip of Figure 9 prior to bending;

Figure 11 shows a cross-section through another clip being a second variation of the first embodiment; and

Figure 12 is a view of a one-piece flat blank for the clip of Figure 11 prior to bending.

Figure 1 shows a strut 10 comprising a wooden inner 12 and two metal covers 16, 14. The wooden inner is in a generally H-shaped configuration, ie it is rectangular with a pair of rectangular grooves 18 cut into opposed short faces. The metal covers 16, 18 together form a complete metal exterior to the strut 10, meeting at the base 20 of the cut-outs.

The cut-out 20 serves effectively to define a pair of ridges 22, 24 either side thereof, on either opposed face of the strut 10. The metal covers 14, 16 are each formed with a transverse ridge 26, 28 on either side of the ridge 22, and projecting transversely to the ridge 22. The ridge 26 projects away from the cut-out 18, and the ridge 28 projects into the area of the cut-out 18.

Two plasterboard panels 30,32 stand upright alongside the strut 10 and with their edges adjacent a ridge 22. A trim strip 34 is applied in the gap between the two panels 30, 32 in order to provide a neat appearance. The trim strip 34 is mentioned now for simplicity, but it should be understood that it is the last item to be fitted whilst the wall is being assembled.

A clip 36 is attached to the rear face of each panel 30, 32. Each clip 36 comprises a flat base portion 38 from either side of which extends transversely a side wall 40, 42, from which in turn extends a curved portion 44, 46. The curved portion extends inwardly of the clip but bends through approximately 180°, thereby forming an inwardly directed resilient ridge.

The clip 36 is held to a rear face of the plasterboard 30, 32 by a clamp 48. This comprises a generally flat sheet of steel, which has an overlapping portion 50 and an engagement region 52. Barbs 54 extend from the engagement region 52 into the body of the plasterboard panel 30.

The plan view of the clamp 48 is as described with reference to Figure 5, and therefore the manner in which the clamp 48 retains the clip 36 will be described later.

Figure 3 shows a plan view of the clip 36. It can be seen that the base portion 38 is provided in the centre, separated from the side wall 40 by a fold line 56, which is in turn separated from the curved portion 44 by a fold line 58. The base 38, wall 40 and curved portion 44 are all of the same width. On the other side of the base 38, the wall 42 is separated therefrom by a fold line 60 and the curved portion 46 is in turn separated therefrom by a further fold line 62. The side wall 42 and curved portion 46 are approximately one half the width of the base portion 38, and are positioned roughly half way along its edge. This provides two open edges of the base portion 38 which enable the clamp 48 to overlap same, as will be described later.

The second embodiment of the invention is shown in Figures 4 to 6. This embodiment differs only in respect of the clip and metal covers for the strut, and therefore reference numerals identical to those used in respect of the first embodiment will be used in respect of the remaining parts.

In Figure 4, the wooden inner 12 of the strut 11 is identical to that of Figure 1. However, the metal covers 68, 70 differ in that the ridge 26 of Figure 1 is expanded in width to form a ridge 72 of much greater extent.

The clip 74 comprises a base portion 38, side wall 40 and curved portion 44 as per the clip 36 of Figures 1 and 2, but the edge of the curved portion 44 carries a downwardly directed lip 76 extending parallel to and towards the side wall 40.

Along the other edge of the base portion 38, a side wall 78 extends upwardly parallel to the side wall 40, and a short flange 80 extends obliquely

therefrom away from the other wall 40, to provide a smooth entry ramp.

Figure 6 shows a one-piece blank similar to that of Figure 3, showing a base portion 38 with a side wall 40, curved portion 44 and return lip 36 extending from one side thereof and limited by fold lines as illustrated, and side wall 78 and ramp 80 extending from the upper edge of the base portion 38. Again, the side wall 78 and ramp 80 are narrower that the base portion 38 leaving corresponding free edges 64 and 66.

Figure 7 shows the clamp 52 and clip 74 attached to the plasterboard panel 30 prior to attaching the assembly to the strut 11. It can be seen that engagement portion 52 of the clamp 48 comprises a generally rectangular section, and that the overlapping region 50 in fact comprises a pair of transverse extensions of either end of that rectangular region 52, which project over the free edges 64 and 66 of the clip 74 to overlap the base portion 38. Thus, the clip 74 is retained in place, but can be manhandled on site to make small amendments to its position.

Figure 8 shows the manner in which the embodiment of Figure 4 may be disassembled. First, the trim strip 34 is removed by simply taking hold of one end thereof and pulling it out of place. A tool such as a screwdriver 82 is then inserted into the gap between the panels 30, 32 and the blade thereof is inserted behind the reverse lip 76. The screwdriver is then rotated in the direction of arrow 84 so as to pull the curved portion 44 away from the edge of the lip 28. This disengages the clip 74 from the strut 11 and allows the panel 30 to be removed.

A similar procedure is adopted for the panel 32.

If the embodiment of Figure 1 is to be dissembled, it is possible simply to remove the trim strip 34 and thereby grasp the edge of panel 30 and pull steadily. This should cause the curved portions 44, 46 to deflect over the

ridges 26, 28 and detach from the strut 10.

Figures 9 and 10 show a variant on the embodiment of Figures 1 to 3 in which a pair of tags 100 are formed upstanding on the base portion 38 of the clip 36. This tag 100 is directed generally toward a stud 10 when assembled, and can therefore project into an edge thereof to provide firmer retention.

Figure 9 also shows a contact bump 102 extending downwardly from the base portion 38. Two such bumps 102 are provided on the base portion 38, thereby to provide two point contact between the clip 36 and the plasterboard 30. This avoids difficulties which may be caused by any departure from exact planarity of either the base portion 38 or the relevant face of the plasterboard 30. The corresponding blank for the clip 36 shown in Figure 9 is illustrated in Figure 10, to illustrate the relative positions of the bump 102 and tag 100.

Figures 11 and 12 show another variation on the clip 36 of figures 1 to 3. It should be understood that this variation can be employed as an alternative or as an addition to the first variant described above and illustrated in Figures 9 and 10. According to the second variation, a slot 110 is formed in the curved portion 44 which, when fitted, is proximate the trim strip 34. In like manner to Figure 8, a screwdriver can then be inserted between the panels 30, 32, engaged in the slot 110 and levered so as to disengage the clip from the stud 10.

Such a slot 110 is expected to be substantially easier to manufacture than a return lip 76 as illustrated in Figure 5.

Figure 12 shows, for clarity, a flat blank for the clip of Figure 11. Such a clip could therefore be manufactured by cutting the external shape of the blank, cutting the slot 110, and folding the blank appropriately.

The modifications to the tag of Figures 1 to 3 as shown in Figures 9 and 10 and/or Figures 11 and 12 could of course be applied with equal efficacy to the tag 74 of Figures 4 to 8.

It will be appreciated by those skilled in the art that the above described embodiments are given by way of example only, and that may variations can be made thereto without departing from the scope of the present invention.

CLAIMS

1. A partition system comprising a plurality of vertically disposed struts and at least one panel attached to those struts via attachment means comprising a U-shaped clip attached to a rear face of the panel and clipped to such a strut, each strut comprising a groove running along the face opposed to a panel, the U-shaped clip having one arm extending into the groove and another extending alongside an adjacent face of the strut transverse to the rear face of the panel, thereby to grip the strut between the two arms of the U-shaped clip.

2. A partition system according to claim 1 wherein one of the adjacent face and the groove has a lip or ridge behind which the clip engages.

3. A partition system according to claim 2 wherein the clip so engages behind such a lip on both faces.

4. A partition system according to any preceding claim wherein the engagement of the clip is by way of an inwardly directed bulge which catches behind the lip or ridge.

5. A partition system according to claim 4 wherein the bulge is an inward curve formed in the clip.

6. A partition system according to claim 5 wherein the end of the curve has a return lip.

7. A partition system according to any preceding claim wherein the strut has a wooden core and a metal outer frame.

8. A partition system according to claim 7 wherein the metal frame is in two parts.

9. A partition system according to claim 8 wherein the division between the two parts is at the base of two grooves of the strut, at opposed faces.

10. A partition system according to claim 9 wherein the clip is of spring steel.

11. A partition system according to any preceding claim wherein the clip is attached to the rear face of a panel by way of a face of the clip being held adjacent to the rear face of the panel beneath a planar clamp having an overlapping region and an engagement region in which it engages with the panel.

12. A partition system according to claim 11 wherein engagement is by way of barbs upstanding from a surface of the clamp and extending into the panel.

13. A partition system according to claim 11 or claim 12 wherein the clamp is cranked at the division between the overlapping region and the engagement regions.

14. A partition system substantially as herein described with reference to and/or as illustrated in the accompanying drawings.

The Patent Office

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Application No:	GB 9802190.0	**Examiner:**	Mr D. J. Lovell
Claims searched:	1-14	**Date of search:**	23 March 1998

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): E1D (DF194, DLCKK, DLCKN, DLEKK, DLEKN)

Int Cl (Ed.6): E04B

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2256657 A	Keysan Ltd - note clips 18,118,218	1,2,4,5
X	GB 1375047	Allen	1-6,11,12

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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